

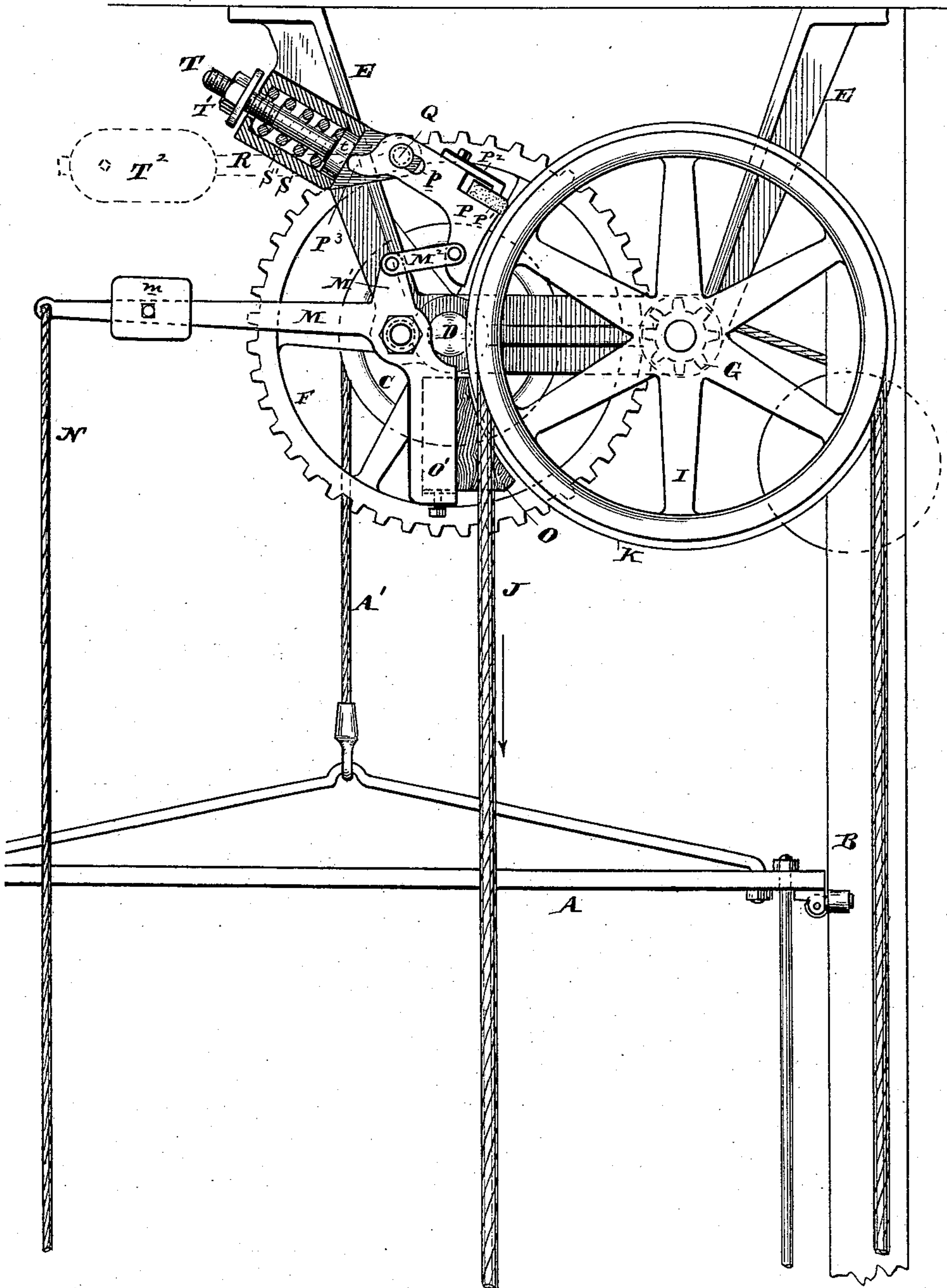
(No Model.)

J. SPROGELL & H. S. HASKINS.

## HOISTING MACHINE.

No. 324,425.

Patented Aug. 18, 1885.



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# UNITED STATES PATENT OFFICE.

JOHN SPROGELL AND HARRY S. HASKINS, OF PHILADELPHIA, PA., ASSIGN-  
ORS TO EDWIN HARRINGTON, SON & CO., OF SAME PLACE.

## HOISTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 324,425, dated August 18, 1885.

Application filed January 30, 1885. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN SPROGELL and HARRY S. HASKINS, both of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Hoisting-Machines, of which the following is a specification.

Our invention has reference to hoisting-machines; and it consists in a hoisting-machine provided with two brakes, one of which is adapted to be automatically applied upon any attempt of the elevator to run down, and the other of which is adapted to be applied only by hand when it is desired to arrest the rotation of the cable-pulley or descent of the cage; further, in the said construction, combined with a single operating rope or rod, by which the action of either of said brakes may be controlled at will; further, in combining the said brakes and coupling them together in such a manner that when one is applied the other is removed, and vice versa, and in many details of construction, all of which is set forth in the following specification and shown in the accompanying drawings, which form part thereof.

Heretofore elevators have been made with a single brake, which is not applied except when the brake-cord is pulled, and in ascending or descending should the operating rope become broken the cage tends to fall rapidly, and it is practically impossible for the operator to quickly arrest the descent thereof; further, in descending it is difficult to arrest the cage or platform, particularly when heavily loaded, even with the floor, so that the contents may be removed from the platform to the floor without being raised or allowed to fall. Hand-elevators as commonly made, if heavily loaded, would run down rapidly, and therefore require some one to stand by the brake-rope and keep it applied to prevent injury or breakage.

The object of our invention is to provide means by which the elevator-cage cannot descend faster than the operator who may be on the cage desires, the descent being wholly under his control, as the brake-rope hangs loosely by the side of the cage, and in descending he holds the same by a gentle pressure, by which both brakes are removed from the brake-

wheel. If he wish to reduce the speed of the elevator, he pulls upon the brake-rope with any pressure desired, and if he should wish to stop the cage in front of any floor he simply lets go of the said brake rope, and one of the brakes is automatically applied and arrests any further descent of the cage positively, but not abruptly, in practice it being very easy to bring the platform exactly level with the floor at which it is desired to arrest its descent. In addition to this, if the hoisting-rope should become broken in raising the elevator one of the brakes is automatically applied, almost instantly arresting the descent of the cage, and thereby preventing any accident whatsoever.

In the drawing is shown an elevation of a hoisting apparatus embodying our invention.

A is the cage. B are the guides therefor. A' is the cable which raises or lowers the cage. This cable passes over the lifting-sheave C, and may be attached at its free end with a counterbalance-weight in the usual manner. This sheave C is secured to a shaft, D, journaled in the frame E, and which also carries secured to it the spur-gear F, which meshes with a pinion, G, secured to or on the same shaft which carries the hoisting-rope sheave I, over which the hoisting-rope J passes, and to which the brake-wheel surface K is preferably secured.

M is the brake-lever, being pivoted to the frame E, and provided with a box, O', in which the wooden brake-shoe O is secured. This lever is provided with a counterbalance-weight, m, and is operated by the hand-rope N.

P is the auxiliary brake-shoe, and is pivoted on the pin Q, which passes through the slot p. This shoe is provided with a heel, P', clamped in position by a plate, P<sup>2</sup>, and which heel is preferably formed of rawhide; but may be formed of any other material, if so desired, rawhide being more preferable, as it creates less noise. This auxiliary shoe P is coupled to an extension, M', of lever M by a link, M<sup>2</sup>, so that any movement of one shoe must necessarily cause a movement in the other shoe, but in opposite directions—that is to say, if the shoe O is applied to the brake-wheel the shoe P is removed from same, and vice versa.



The shoe P is provided with a lever-extension, P<sup>3</sup>, which rests against the piston *t*, secured to the rod T, and which works within the cylinder S, being pressed toward the lever P by a spring, S', having its movement controlled by an adjusting-nut, T'. This pressure apparatus is designated by R. From this it is seen that the spring S' opposes the action of the weight *m*, and is made of such strength as is just capable of raising the said weight and withdrawing the shoe O away from contact with the brake-wheel. From this it is seen that if the rope J be pulled as indicated by the arrow, the friction created between the heel-extension P' of the shoe P and the brake-wheel will tend to throw the said shoe into the position shown, in which both of the brake-shoes are practically thrown out of contact with the brake-wheel, the cage being in its upward movement. If, now, the cage A be on the descent, the reversal of the direction of movement of the brake wheel will naturally raise up the heel-extension, owing to the friction and assistance of the spring S', and cause said shoe P to clamp upon the brake-wheel, tending to arrest any further descent of the cage.

To prevent the cage being arrested, it is simply necessary to hold upon the rope N with a gentle pressure, just sufficient to prevent the said friction between the brake-shoe heel and brake from drawing the brake-shoe P down against the brake-wheel proper.

If it is desired to reduce the rapidity of descent, it simply becomes necessary to pull upon the brake-rope N with a greater or less force, which action causes the brake-shoe O to be pressed in contact with the brake-wheel with a greater or less pressure.

In this construction to arrest the descent of a cage it would be customary to free the brake-rope, whereas in all other constructions of elevators it is customary to pull hard upon the brake-rope; also, when pulling down the brake-rope of this machine gently both brakes are practically removed, while such an action in elevators as commonly constructed would be to apply the brake, and it is upon these radical differences that the essential feature of the invention is based, the particular means shown to accomplish the result being immaterial to our invention.

In place of the spring-piston and cylinder,

which acts upon the brake-shoe P, the said shoe may be actuated by a lever and weight, as shown at T<sup>2</sup>, as the same result would be accomplished thereby, though not in quite so satisfactory a manner.

The slot *p* of the shoe P allows the said shoe to be pressed away from the brake-wheel more or less as required, to allow for any irregularity in the said wheel, and by this construction preventing any possibility of a binding action in the ordinary running of the machine.

While we prefer the construction shown, we do not limit ourselves to the details thereof, as they may be modified in various ways without departing from our invention.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an elevator, the combination of a brake-wheel, brake-shoe O O', lever M, cord N, weight *m*, link M<sup>2</sup>, shoe P, having heel-extension P', and a spring or weight to press said shoe P toward the brake-wheel and the shoe O O' away from said brake-wheel, substantially as and for the purpose specified.

2. The combination of brake-wheel K, shoe P, having heel-extension P', piston *t* T', spring S', and cylinder or case S, substantially as and for the purpose specified.

3. The combination of brake-wheel K, shoe P, having heel-extension P', piston *t* T, adjusting-nut T', spring S', and cylinder or case S, substantially as and for the purpose specified.

4. The combination of brake-wheel K, with shoe P, having a heel-extension, P', made adjustable upon said shoe, substantially as and for the purpose specified.

5. In an elevator, two brake-shoes coupled together so that when one is applied the other is removed, in combination with weights or springs, or both, acting upon each of said shoes and opposing each other, their normal action being to remove both shoes from the brake-wheel, and an operating-cord, substantially as and for the purpose specified.

In testimony of which invention we hereunto set our hands.

JOHN SPROGELL.

HARRY S. HASKINS.

Witnesses:

R. M. HUNTER,

WILLIAM C. MAYNE.